

PATENT CLAIMS

1. Injection device comprising:

- a tubular elongated main body,
- a needle shield slidably arranged in said main body,
- 5 - a needle shield link slidably connected to said needle shield,
- an enclosure containing medicament arranged in said main body,
- a needle connected to said enclosure,
- a plunger operatively arranged to said enclosure for ejecting said medicament through said needle and arranged on its upper part 10 with a number of outwardly extending stop members,
- spring means arranged to said plunger for operating said plunger,
- a dose activating means,
- a needle shield spring surrounding the needle shield link characterised in that
- 15 - said injection device further comprises a first tubular member rotationally and slidably arranged inside said needle shield link,
- said tubular member comprises a number or ridges and protrusions on both its outer and inner surfaces,
- said ridges and protrusions on the outer surface of the tubular 20 member co-operate with guide members arranged on the inner surface of said needle shield link,
- said ridges and protrusions on the inner surface of the tubular member co-operate with the outwardly extending stop members of the plunger
- 25 - that said injection device further comprises a second tubular member arranged inside said housing, arranged and designed with a number of ridges and protrusions on its inner and outer surfaces capable of setting and delivering a certain preset dose.

30 2. Injection device according to claim 1, characterised in that said needle shield is in a retracted position inside the main housing and held in this position against the force of the needle shield spring by an

outwardly extending knob on the tubular member outer surface abutting an inwardly extending knob on the inner surface of the needle shield link.

5 3. Injection device according to claim 1, characterised in that said needle shield is in an extended position and held in this position by the force of the needle shield spring.

10 4. Injection device according to claims 1, 2 and 3; characterised in that said dose activating means is arranged with inwardly extending stop members, which co-operates with the plungers outwardly extending stop members in order to hold said plunger and said spring means in a tensioned locked position.

15 5. Injection device according to claim 1, characterised by a dose stopping means that comprises step-like inwardly extending ledges positioned in line with the outwardly extending stop members of the plunger for permitting different lengths of movement of the plunger and thus different doses of the medicament.

20 6. Injection device according to claim 5, characterised in that said dose stopping means can be arranged between the dose activating means and the tubular member or on the inner/outer surfaces of the tubular member.

25 7. Injection device according to claim 5, characterised in that said dose stopping means can be arranged on a separated tubular means, rotationally and adjustable relative to the tubular member.

30 8. Injection device according to any of the preceding claims, characterised in that said dose activating means is turned from a locked position to an optional dose position, wherein the turning of said dose

activating means causes the outwardly extending stop members of the plunger to slide off the inwardly extending stop members of the dose activating means until said outwardly extending stop members of the plunger abut a first step-like inwardly extending ledge of the dose

5 stopping means, whereby the force of the injection spring pushes the plunger towards the enclosure in order to move the stopper inside the enclosure and thereby pressing any prevailing air and some liquid out of the enclosure through the needle.

10 9. Injection device according to any of the preceding claims, characterised in that the turning of the dose activating means causes also a rotation of the tubular member, whereby the outwardly extending knob on the tubular member is moved out of contact with the inwardly extending knob of the needle shield link, and then the force of the

15 needle shield spring urges the needle shield and the needle shield link to an extending position and thereby covering the needle from sight.

10. Injection device according to any of the preceding claims, characterised in that the inner surface of the needle shield link is

20 arranged with guide knobs, which during the movement to an extended position run along a guide surface on the outer surface of the tubular member having extending ridges and inclined ledges in relation to the longitudinal direction of the device and thereby causing the tubular member to rotate somewhat in relation to the needle shield link.

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11. Injection device according to any of the preceding claims, characterised in that during an inward movement of the needle shield, the guide knobs of the needle shield link run along longitudinally extending ridges on the outer surface of the tubular member until said

30 guide knobs come in contact with the inclined ledges on the outer surface of the tubular member, whereby said contact between these causes the tubular member to turn until the outwardly extending stop

members of the plunger slip off the second set of ledges arranged on the upper part of the tubular member and thereby moving the plunger downward due to the force of the injection spring and ejecting the medicament through the needle.

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12. Injection device according to any of the preceding claims, characterised in that during an outward movement of the needle shield, the guide knobs of the needle shield link moves along the other side of the ridges and at a certain position along this path, said guide knobs fit 10 into recesses in the tubular member, thereby locking the needle shield in an extended position.

13. Injection device according to claim 11, characterised in that said 15 guide knobs of the needle shield link passes, by depressing them, outwardly protruding acting snaps and thereby locking the needle shield in an extended position.